

REMARKS

Summary

This Amendment is responsive to the Office Action mailed on August 13, 2003. Claim 15 is amended. Claims 1-24 are pending.

The Examiner has indicated that claims 14-22 contain allowable subject matter.

Claims 15-18 stand rejected under 35 U.S.C. § 112 as being indefinite. Claim 15 is amended to overcome the rejections under 35 U.S.C. § 112. In particular, claim 15 is amended to depend from claim 14, in order to provide proper antecedent basis for "the reference coil" of claim 15. Withdrawal of the rejections under 35 U.S.C. § 112 is respectfully requested.

Claims 1, 3, 9, 11-13, 23 and 24 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Phillips (US 4,571,595).

Claims 4-8 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Phillips.

Applicants respectfully traverse these rejections in view of the following comments.

Acknowledgement of Applicants' Priority Claim Requested

As a preliminary matter, Applicants respectfully request that the Examiner acknowledge Applicants' priority claim in the next Official Communication. Applicants' priority documents were submitted with the application on September 25, 2001.

Discussion of the Present Invention

Pending claim 1 is drawn to an inductive sensor comprising:

- at least one sensor coil in the form of a structured, conductive layer of a carrier board;
- an evaluation circuit comprising a printed circuit board with conductor tracks provided thereon and being connected to the sensor coil;
- wherein the carrier board carrying the sensor coil is mechanically rigidly and electrically connected to the printed circuit board by at least two soldered joints.

The two soldered joints of the present invention not only connect the sensor coil electrically to the printed circuit board, but also simultaneously establish a mechanical connection between the sensor coil (which is a flat coil in the form of a structured, conductive layer) and the printed circuit board. Thus, the sensor coil and the printed circuit board form a unit for joint handling and insertion into a sensor housing in the course of a further manufacturing process (see, e.g., Applicants' specification, page 2, second paragraph).

With Applicants' invention, considerable cost advantages are achieved, as is no longer any need for flexible electrical lines to be individually handled and soldered or for a sensor coil and printed circuit board to be mechanically positioned. In accordance with the present invention, an electrical connection is simultaneously made by at least two mechanically rigid soldered joints.

Discussion of Phillips

Phillips discloses a dual band transmission line antenna for a radio wave transceiver. In contrast, the present invention is directed toward an inductive sensor. Applicants respectfully submit that a person skilled in the art would not take into account the disclosure of Phillips when confronted with a problem of manufacturing an inductive sensor in the most cost efficient way possible (see, e.g., Applicants' specification, page 1, last paragraph).

The radio wave transceiver 10 of Phillips has an antenna 11. The antenna 11 consists of a conductor 18, whose first and second ends 20, 22 terminate with first and second radiator elements 26, 28. The radiator elements 26, 28 extend substantially parallel to the longitudinal axis of an elongated circuit board 12 and then terminate with ground plane 30. The ground plane 30 is made of a conducting element such as a metal plate (Col. 2, line 44 through Col. 3, line 3).

It appears from Figure 1 that the ends 20, 22 of the conductor 18 are connected with the radiators 26, 28 via soldered joints.

However, the antenna 11 is not equivalent to a sensor coil as claimed by Applicants. Further, the ground plane 30 with radiator elements 26, 28 of Phillips is not equivalent to an evaluation circuit comprising a printed circuit board with conductor tracks provided thereon as claimed by Applicants.

To the contrary, the duplexer 46 of Phillips may be seen as a kind of evaluation circuit (Col. 3, lines 56-57;

Figures 2 and 3). The duplexer 46 is connected via input transmission line 38 to a feed point 24 which is located substantially on the center of conductor 18 (Col. 2, lines 57-59).

Phillips does not disclose or remotely suggest that the circuit board 12 and the circuit board 14 are mechanically and rigidly connected by at least two soldered joints, as claimed by Applicants. In the embodiments shown in Figures 1 and 3 of Phillips, the mechanical connection between the boards 12 and 14 are not visible. However, in the embodiments shown in Figures 4 and 5 of Phillips referenced by the Examiner, the connection between circuit boards 12 and 50 is shown. The connection shown appears to be a type of mechanical interlocking connection between the two boards, where protrusions on one board fit within cutouts of the other board (see, Figures 4 and 5 of Phillips).

In addition, none of the embodiments described or shown in the Figures of Phillips discloses or remotely suggest an electrical connection between a coil and an evaluation circuit via a soldered joint, which soldered joint also establishes a mechanically rigid connection between the board carrying the sensor coil and the printed circuit board, as claimed by Applicants. In Phillips, the first conducting plate 34 and the second conducting plate 36, which is spaced apart from the first conducting plate 34, form a capacitor (Col. 3, lines 16-21). Therefore, these two conducting plates 34 and 36 do not have an electrical connection between them and therefore there cannot be a rigid mechanical connection and an electrical connection via soldered joints between coil 11 (which comprises the

conductor 18, the ends 20 and 22, the radiator elements 26 and 28, and the ground plane 30) and an evaluation circuit (which comprises the duplexer 46).

Applicants respectfully submit that the present invention is not anticipated by and would not have been obvious to one skilled in the art in view of Phillips, taken alone or in combination with any of the other prior art of record.

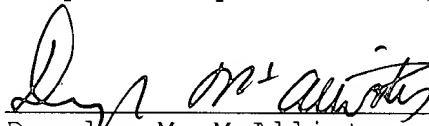
Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

Withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) is therefore respectfully requested.

Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Doug M. McAllister", is written over a horizontal line.

Douglas M. McAllister  
Attorney for Applicant(s)  
Registration No.: 37,886  
Law Office of Barry R. Lipsitz  
755 Main Street  
Monroe, CT 06468  
(203) 459-0200

ATTORNEY DOCKET NO.: HOE-649

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